Claims

[c1] WHAT IS CLAIMED:

1. A method for controlling an engine have at least first and second groups of cylinders, the engine coupled to an emission control device, comprising:
in response to engine starting, and during emission control device warm-up:
operating the first group of cylinders at a first ignition timing; and
operating the second group of cylinders at a second ignition timing more retarded than said first group.

[c2] 2. The method recited in Claim 1 further comprising adjusting at least one of airflow or injected fuel or ignition timing at least the first group of cylinders in response to an engine control signal.

[c3] 3. The method recited in Claim 2 wherein said engine control signal is a desired engine speed, and said first ignition timing is retarded from a maximum torque timing.

[c4] 4. The method recited in Claim 2 wherein said engine control signal is a measured engine speed.

[c5] 5. The method recited in Claim 2 wherein said engine control signal is a desired engine torque.

[c6] 6. The method recited in Claim 1 wherein said operating of the first and second group of cylinders is further in response to an indication that the engine is operating in idle speed control.

[c7] 7. The method recited in Claim 1 wherein the first group of cylinders is operated at a higher load than if both cylinder groups were operated at substantially the same ignition timing.

[c8] 8. A method for controlling an engine have at least first and second groups of cylinders, the engine coupled to an emission control device, comprising:
starting the engine by injecting fuel into both a first group of cylinders and a second group of cylinders, and operating at least one cylinder in the first group of cylinders and at least one cylinder in the second group of cylinders at an

ignition timing near maximum torque ignition timing;

after said engine starting:

operating at least one cylinder in the first group of cylinders at a first ignition timing; and

operating at least one cylinder in the second group of cylinders at a second ignition timing more retarded than said first group.

[c9] 9. The method recited in Claim 8 wherein after said engine starting is determined based at least on engine speed.

[c10] 10. The method recited in Claim 8 wherein after said engine starting is determined based at least on time since engine start.

[c11] 11. The method recited in Claim 8 wherein after said engine starting is determined based at least on when synchronous injection begins.

[c12] 12. The method recited in Claim 8 wherein after said engine starting is determined based at least on engine rotation.

[c13] 13. The method recited in Claim 8 wherein said first ignition timing is retarding from a maximum torque timing.

[c14] 14. A method for controlling an engine have at least first and second groups of cylinders, the engine coupled to an emission control device, comprising:

after engine starting, operating the engine in a first mode including:

operating the first group of cylinders at a first ignition timing; and

operating the second group of cylinders at a second ignition timing more retarded than said first group.

[c15] in response to a request, transitioning the engine to a second mode of operation.

[c16] 15. The method recited in Claim 14 wherein said first ignition timing is retarded from a maximum torque timing.

[c17] 16. The method recited in Claim 14 wherein said request is a request for increased manifold vacuum.

[c18] 17. The method recited in Claim 14 wherein said request is a request for fuel vapor purging.

[c19] 18. The method recited in Claim 14 wherein said second mode of operation includes advancing said second ignition timing and decreasing engine airflow.

[c20] 19. The method recited in Claim 14 wherein said second mode of operation includes operating both said first and second ignition timing at substantially the same value.

[c21] 20. The method recited in Claim 14 wherein said request is based on an indication that the emission control device has reached a predetermined temperature.

[c22] 21. A system comprising:
an 8 cylinder engine having first and second groups of 4 cylinders each;
a first exhaust manifold coupled to 2 cylinders of the first group and 2 cylinders of the second group;
a second exhaust manifold coupled to the other 2 cylinders of the first group and the other 2 cylinders of the second group;
a controller for operating the first group of cylinders with ignition timing more retarded than the other group of cylinders; and
using the second group for control.

[c23] 22. The system of Claim 21 wherein said first group generates heat.

[c24] 23. A system comprising:
a 10 cylinder engine having first and second groups of 5 cylinders each;
a first exhaust manifold coupled to the first group;
a second exhaust manifold coupled to the second group;
a controller for operating the first group of cylinders with ignition timing more retarded than the other group of cylinders during a first interval; and
operating the second group of cylinders with ignition timing more retarded than the other group of cylinders during a second interval.